

Application No.: 10/531,752
Amendment dated November 10, 2010
Response to Office Action dated August 11, 2009

REMARKS

In the Office Action dated August 11, 2010, claims 113-132 were rejected while claims 103-112 remained withdrawn from further consideration. In response, Applicant has cancelled claims 1-112 as well as claim 120, and amended claims 113, 121, 122 and 126. In view of the above amendments and following remarks, reconsideration of this application is requested.

In the Office Action, claim 120 was rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement due to a negative proviso contained therein. In response, Applicant has cancelled claim 120. Accordingly, Applicant believes this §112 rejection is now moot and respectfully requests the Examiner withdraw the rejection.

In the Office Action, claims 113-132 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. First, the Examiner indicated that the claims are rejected due to the use of the allegedly inconsistent terms "solute" and "distillate" in claim 113. In response, Applicant has amended claim 113 herein to cancel the term "solute" from step (e) therein. Applicant believes this overcomes the Examiner's indefiniteness rejection. Applicant also apologizes for inadvertently failing to correct this inconsistency in claim 113 in view of the rejection made in the previous Office Action dated December 8, 2009. As the Examiner can see, in the Response dated June 8, 2010 Applicant corrected the alleged inconsistency in the preamble of claim 113, but unfortunately, and inadvertently, failed to correct the same inconsistency located in step (e) of the claim. Thus, Applicant did not acquiesce in the rejection, as indicated by the Examiner, since Applicant did in fact amend the preamble of the claim but, as noted above, inadvertently forgot to also correct the inconsistency in step (e) in the body of the claim. The present amendment now corrects claim 113, and thus Applicant respectfully requests the Examiner withdraw the §112 indefiniteness rejection.

In the Office Action, the Examiner also rejected claim 113 under 35 U.S.C. §112, second paragraph, as being indefinite because the limitation "the product" in step (d) did not have sufficient antecedent basis. In response, Applicant has corrected step (d) by referring to feeding the feed water stream having a pH of at least 9 or higher into an evaporator. The feed water stream having a pH of at least 9 or higher has clear antecedent basis in step (c) (II). Accordingly, Applicant requests the Examiner withdraw this §112 rejection of claim 113.

In the Office Action, claims 121, 122 and 126 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite or having improper Markush language. In response, Applicant has amended claims 121, 122 and 126 to recite alternative language as suggested by the Examiner.

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Accordingly, Applicant believes claims 121, 122 and 126 are all now definite, and requests the Examiner withdraw the indefiniteness rejection of these claims.

In the Office Action, claims 113-132 were rejected under 35 U.S.C. §103(a) as being unpatentable over Heins US 6,733,636 in view of Riggs, Jr. US 4,746,438. The Examiner states that Applicant's previous arguments relating to the removal of multivalent metal cations and elimination of non-hydroxide alkalinity was not persuasive because Heins, column 3, lines 44-47 states that non-hydroxide alkalinity is removed "by introducing the feed water into a decarbonator, wherein said free carbon dioxide is substantially removed." In response, Applicant respectfully disagrees for the following reasons.

The Examiner will see that claim 113 has been amended to now call for removing the multivalent metal cations from the feed stream "by passing said feed water stream through a cation ion exchange system." Applicant refers the Examiner to Figs. 2-5 which clearly illustrate the use of a cation ion exchange system 22 in combination with a de-gassing unit 30. Applicant also refers the Examiner to page 13, paragraphs 00065-00067. Thus, claim 113 is now limited to using a cation ion exchange system, in combination with de-gassing unit 30, for removing substantially all multivalent metal cations from the feed water stream.

In contrast, Heins '636 does not teach or disclose the use of a cation ion exchange system to remove multivalent metal cations. Applicant refers the Examiner to column 3, lines 41-47 of Heins '636 which merely states that non-hydroxide alkalinity, including any free carbon dioxide, is substantially removed in a de-gasifying unit similar to Applicant's de-gasifying unit 30. At column 4, lines 45-50, Heins once again states that the feed water may be heated to remove some of the desolved gases and the addition of acid aids in removing carbonates (in the de-gasifier). In addition, Figs. 3-4 of Heins nowhere discloses the use of the cation ion exchange system. Finally, it should be noted at column 6, lines 20-32 that the system disclosed in Heins utilizes a seeding technique in an attempt to alleviate the problems associated with scaling and following in the evaporator. As the Examiner will see, the feed water is "seeded" by the addition of calcium sulfate (gypsum) in the process disclosed in Heins. In contrast, Applicant does not "seed" the feed water. In fact, Applicant specifically states that it desires to avoid the "seeding" technique because of all of the disadvantages thereof discussed in paragraph 00011 on pages 3 and 4 of the specification as filed. Thus, by utilizing a cation ion exchange system to remove multivalent cations in the feed water, Applicant allows trouble-free evaporator operation at high pH levels, and avoids all of the shortcomings of "seeding" the feed water, such as what occurs in Heins '636, and thus avoids all of the disadvantages and shortcomings thereof.

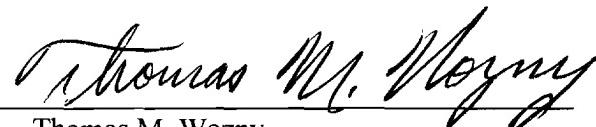
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Riggs, Jr. '438 does not supply what is missing from Heins. Riggs discloses post-treatment of distillate from an evaporator to make the distillate suitable for use as boiler make up water. By definition, the distillate is already a high quality water that is contaminated with carry over in the vapor along with non-condensable gases. The process of Riggs is employed after the evaporator, and the process of Riggs would have no real use in Applicant's system, and thus would not be combinable with Heins, since all of the hardness ions are removed in the process of the present invention and are not carried over into the distillate from the evaporator. Thus, even if one attempted to combine Riggs, Jr. with Heins, one would not arrive at Applicant's invention as claimed because Riggs teaches post-treatment of distillate from the evaporator, and not pre-treatment of feed water.

An effort has been made to place this application in condition for allowance and such action is earnestly requested.

Respectfully submitted,

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